

Appl. No. : 10/029,712

Filed : December 19, 2001

IN THE CLAIMS:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1. (previously presented) An injectable ultrasound contrast agent comprising:

(a) a suspension of gas filled microbubbles or microballoons in a physiologically acceptable aqueous carrier comprising at least two surfactants, and additives wherein:

(b) the gas is a gas mixture of at least two biocompatible gases A and B;

(c) gas B is present in an amount of between 50% - 99% by volume;

(d) gas B has a water solubility of not more than about 0.5mM at 25° C and one atmosphere and an average molecular weight at least about 4 times that of gas A; and,

(e) the balance of the mixture is gas A.

2. (previously presented) The injectable contrast agent of claim 1 wherein the aqueous carrier is water.

3. (previously presented) The injectable contrast agent of claim 1 wherein gas B is perfluoropropane.

4. (previously presented) The injectable contrast agent of claim 1 wherein gas B is selected from the group consisting of perfluoropropanes, perfluorobutanes, perfluorocyclobutanes, perfluoropentanes, perfluorocyclopentanes, perfluoro methylcyclobutanes, perfluorohexanes, perfluorocyclohexanes, perfluoro methyl cyclopentanes, perfluoro dimethyl cyclopentanes, perfluoro heptanes, perfluoro cycloheptanes, perfluoro cycloheptanes, perfluoromethyl cyclohexanes, perfluoro dimethyl cyclopentanes, perfluoro trimethyl cyclobutanes perfluoro triethylamines.

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5. (previously presented) The injectable contrast agent of claim 1 wherein gas B is selected from group consisting of perfluoropropanes, perfluorobutanes, perfluoropentanes, perfluorohexanes and perfluoro heptanes.

6. (previously presented) The injectable contrast agent of claim 1 wherein gas A is selected from oxygen, nitrogen and carbon dioxide.

7. (previously presented) The injectable contrast agent of claim 1 wherein gas A is air.

8. (amended) The injectable contrast agent of claim 1 wherein ~~said~~ at least one surfactant is a phospholipid.

9. (amended) The injectable contrast agent of claim 1 wherein ~~said~~ at least one surfactant comprises a mixture of phospholipids.

10. (previously presented) An injectable ultrasound contrast agent comprising:

(a) a suspension of gas filled microbubbles or microballoons in a physiologically acceptable aqueous carrier comprising a surfactant comprised of at least one phospholipid wherein:

(b) the gas is a gas mixture of at least two biocompatible gases A and B;

(c) gas B is present in an amount of between .5 - 50% by volume;

(d) gas B has a water solubility of not more than about 0.5mM at 25° C and one atmosphere and an average molecular weight at least about 4 times that of gas A; and,

(e) the balance of the mixture is gas A.

11. (previously presented) The injectable contrast agent of claim 10 wherein the physiological aqueous carrier is water.

12. (previously presented) The injectable contrast agent of claim 10 wherein gas B is perfluoropropane.

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13. (previously presented) The injectable contrast agent of claim 10 wherein gas B is selected from the group consisting of perfluoropropanes, perfluorobutanes, perfluorocyclobutanes, perfluoropentanes, perfluorocyclopentanes, perfluoro methylcyclobutanes, perfluorohexanes, perfluorocyclohexanes, perfluoro methyl cyclopentanes, perfluoro dimethyl cyclopentanes, perfluoro heptanes, perfluoro cycloheptanes, perfluoro perfluoro trimethyl cycloheptanes, perfluoromethyl cyclohexanes, perfluoro dimethyl cyclopentanes, cyclobutanes perfluoro triethylamines.

14. (previously presented) The injectable contrast agent of claim 10 wherein gas B is selected from group consisting of perfluoropropanes, perfluorobutanes, perfluoropentanes, perfluorohexanes and perfluoroheptanes.

15. (previously presented) The injectable contrast agent of claim 10 wherein gas A is selected from oxygen, nitrogen and carbon dioxide.

16. (previously presented) The injectable contrast agent of claim 10 wherein gas A is air.

17. (previously presented) The injectable contrast agent of claim 10 wherein said surfactant comprises a mixture of phospholipids.

18. (amended) The injectable contrast agent of claim 10 wherein gas A and gas B are present in a molar ratio of between about ~~1:100 to 1000:1~~ 50:1 to about 1:1.

19. (amended) The injectable contrast agent of claim 1 wherein gas A and gas B are present in a molar ratio of between about ~~1:100 to 1000:1~~ 1:1 to about 1:50.

20. (previously presented) The injectable contrast agent of claim 10 further comprising additives and stabilizers.